Speaker: Peter Langlois, Ph.D.

Topic: The Magnitude and Patterns of Birth Defects in Texas: Data from the Texas Birth Defects Registry

Objectives:

1. Describe the process of collecting, compiling, and analyzing birth defects data in Texas.
2. List three of the most prevalent birth defects in Texas
3. Characterize one pattern observed in the data from the Texas Birth Defects Registry.

Outline:

1) Overview of the Texas Birth Defects Registry
   a) History and coverage
   b) Major characteristics
   c) Data collection methods
2) General results
   a) Most common birth defects in Texas
   b) Comparison with other surveillance systems
3) Birth defects that differ significantly by:
   a) Maternal age
   b) Maternal race/ethnic group
   c) Infant/fetus sex
4) A look at geographic patterns

Abstract: This presentation will first provide an overview of the Texas Birth Defects Registry. We will cover how the Registry came to be, how it has grown over time, who can be included in it, and how we collect data for it. The second part will examine data from deliveries in 1996 and 1997 and will answer the following questions. What are the most common birth defects in Texas? How are birth defect rates in Texas compared with other states? What types of birth defects differ between young and old mothers, between mothers in different race/ethnic groups, and between male and female offspring? Are there any differences in birth defect occurrence between regions in Texas, and between areas bordering Mexico vs other parts of the State?

THE MAGNITUDE AND PATTERNS OF BIRTH DEFECTS IN TEXAS

Peter Langlois PhD
Texas Birth Defects Monitoring Division
Texas Department of Health

OUTLINE

- Overview of the Texas Birth Defects Registry
  - History and Coverage
  - Major Characteristics
  - Data Collection Methods
- General Results
  - Most Common Birth Defects In Texas
  - Comparison With Other Surveillance Systems

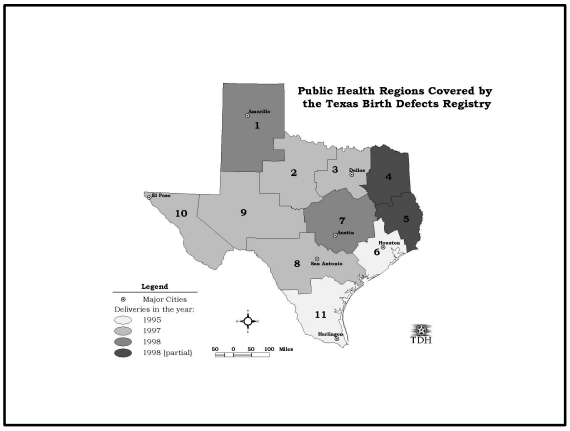
- Birth Defects That Differ Significantly By:
  - Maternal Age
  - Maternal Race/Ethnic Group
  - Infant/Fetus Gender
- Geographic Patterns
  - Regional Differences
  - Residence on Mexico Border

OVERVIEW OF THE TEXAS BIRTH DEFECTS REGISTRY

HISTORY AND COVERAGE

- April 1991 Anencephaly cluster identified in Brownsville - 3 infants within 36 hours - Cameron County rate in 1990-91 was 19.7 per 10,000 live births (six times US rate of 3.2)

- June 1993 Texas Birth Defects Act became law
- March 1994 Texas Birth Defects Monitoring Division began
- Oct 1996 Texas Birth Defects Research Center established
- Jan 1999 Texas Birth Defects Registry expanded



MAJOR CHARACTERISTICS
Mission

- To protect and to promote the health of the people of this State, the Texas Birth Defects Monitoring Division will:
  - Identify and describe patterns of birth defects in Texas
  - Collaborate with others in:
    - Finding causes of birth defects
    - Working toward prevention, and
    - Linking families with services.

Features

- Database of all children with birth defects
- Emphasis on structural malformations
- Active surveillance system:
  - Trained staff visit facilities to collect information
- Based on Atlanta and California programs

Facilities currently include

Case Definition

- Infant/fetus has a structural birth defect or developmental disability (FAS)
- Defect is diagnosed prenatally or within the first year of life (within six years for FAS)
- Mother is resident in Texas at delivery
- Infant is born alive or fetus must be 20 weeks gestational

DATA COLLECTION METHODS

- Case Finding
  - Find potential cases in ICD-9 discharge lists, unit logs
  - Collate lists and request medical charts
- Chart Review
  - Review the chart to see if meets case def'n
- Case Abstraction
  - Copy (abstract) relevant

- Data Processing
  - Checks for errors:
    - Range (e.g. infant has birthweight of 70 lbs)
    - Logic (e.g. infant was born before mother)
    - Diagnosis (e.g. incorrect description or code)
  - Check for duplicates
  - Keep track of where record is

Information We Collect

- Names, addresses, dates of birth, race / ethnicity, infant/fetus gender
- Maternal medical and reproductive history
- Prenatal and postnatal complications
- Delivery info: gestational age, birthweight

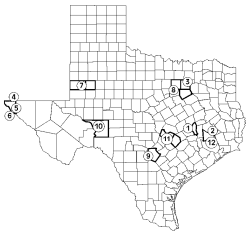
Diagnostic and therapeutic

What Do We Do With The Data?

- Report basic counts and rates; establish background prevalence
- Respond to birth defect cluster concerns
- Respond to data requests
- Other analyses as needed (e.g. data quality)
- Research

Cluster Investigations Conducted in 1997

- 1. Anencephaly
- 2. Anencephaly
- 3. Neural tube defects
- 4. Biliary atresia
- 5. Multiple defects
- 6. Heart defects
- 7. Cleft lip and cleft palate
- 8. Multiple defects
- 9. Multiple defects
- 10. Cleft lip and cleft palate
- 11. Anophthalmia
- 12. Anencephaly



How Can You Get Data/Statistics?

- NOTE: Confidentiality is protected
- Already published information
  - Web site or contact regional or central office
- Unpublished, non-confidential information (e.g. tables, counts)
  - Contact regional or central office
- Unpublished, confidential information (e.g. contact information for a study)

GENERAL RESULTS

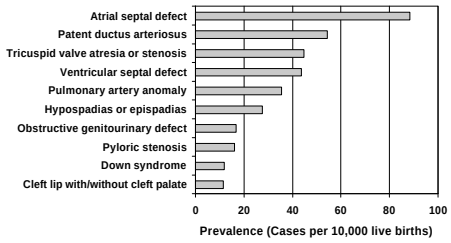
LIMITATIONS OF THESE DATA

- General Limitations
  - Only defects diagnosed up to 1 year of age
  - Events outside Registry area or facilities are missed
  - Subject to differences in clinical practice
- Limitations To 1996-1997 Data
  - 1996 first year for all structural defects
  - 1997 first year for five regions

PROPORTION OF LIVE BORN CHILDREN WITH BIRTH DEFECTS, TEXAS 1996-1997

- 9,381 live born cases in the Birth Defects Registry
- 300,431 total live births to Texas residents
- 3.12 % of live born children in Texas had a major structural birth defect

MOST COMMON BIRTH DEFECTS



COMPARISON OF 1996/97 TX DATA WITH OTHER STATES

- Compared with California (CBDMP) 1989-1995 and Georgia (MACDP) 1989-1996
- Compared 25 defects that were:
  - Recently reported by all 3 states
  - Likely to be uniformly diagnosed
  - Not associated with prematurity
  - Fairly homogeneous categories

Results

- 13 Texas was similar
- 4 Texas significantly lower than one
- 0 Texas significantly lower than both
- 6 Texas significantly higher than one
- 1 Texas significantly higher than both

Texas Similar to Both States

- Anencephaly
- Aortic valve anomaly
- Biliary atresia/stenosis
- Cleft palate alone
- Common truncus
- Down syndrome
- Omphalocele
- Patau syndrome
- Red defects lower
- Red defects upper
- Tracheoesophageal fistula
- Transposition of the great vessels

Texas Similar to Both States

- Anencephaly
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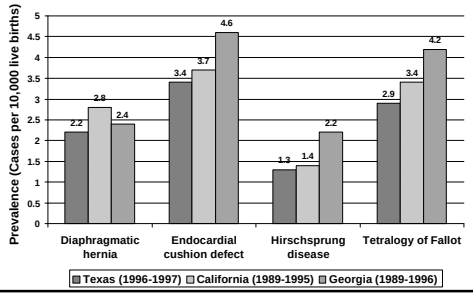
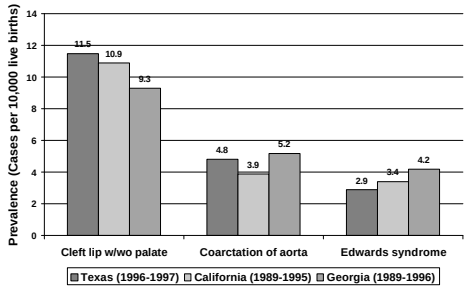
- Transposition of the great vessels

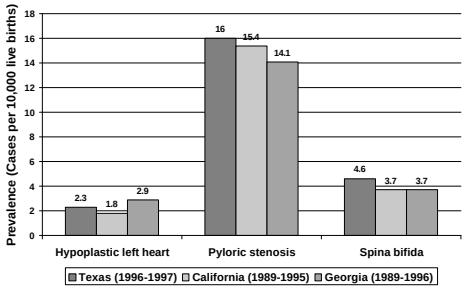
Prevalence of selected defects by state: Defects where Texas rates are lower than one other state



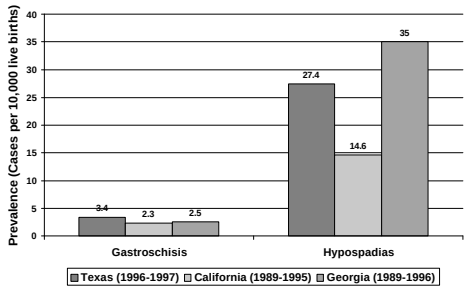
Prevalence of selected defects by state: Defects where Texas rates are higher than one other state



Prevalence of selected defects by state: Defects where Texas rates are higher than one other state



Prevalence of selected defects by state: Defects where Texas rates differ from both other states



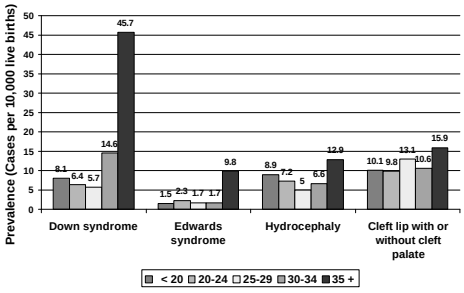
BIRTH DEFECTS THAT DIFFER BY…

MATERNAL AGE

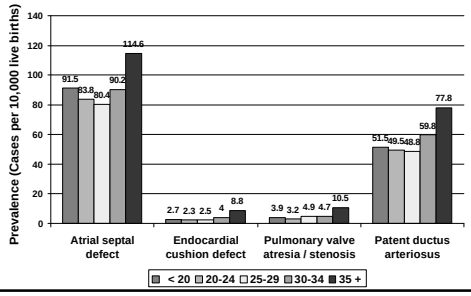
- Highest rates in older mothers
  - Down syndrome (trisomy 21)
  - Edwards syndrome (trisomy 18)
  - Hydrocephaly
  - Cleft lip with or without cleft palate
  - Transposition of the great vessels
  - Ventricular septal defect
  - Atrial septal defect

- Higher in older mothers (continued)
  - Endocardial cushion defect
  - Pulmonary valve atresia or stenosis
  - Tricuspid valve atresia or stenosis
  - Patent ductus arteriosus
  - Coarctation of the aorta

Prevalence of selected birth defects by maternal age, Texas, 1996-1997

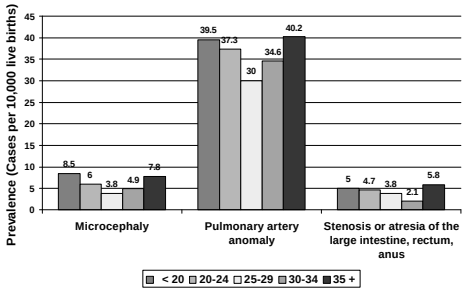


Prevalence of selected birth defects by maternal age, Texas, 1996-1997



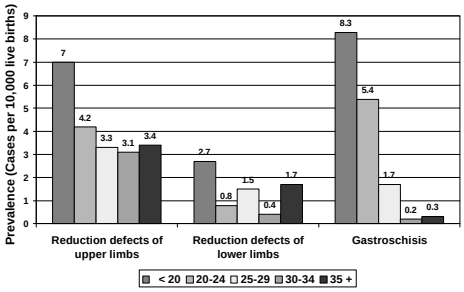
- Highest in younger and older mothers
  - Microcephaly
  - Pulmonary artery anomaly
  - Stenosis/atresia of large intestine, rectum, or anal canal

Prevalence of selected birth defects by maternal age, Texas, 1996-1997



- **Highest in younger mothers**
  - **Reduction defects of the upper limbs**
  - **Reduction defects of the lower limbs**
  - **Gastroschisis**

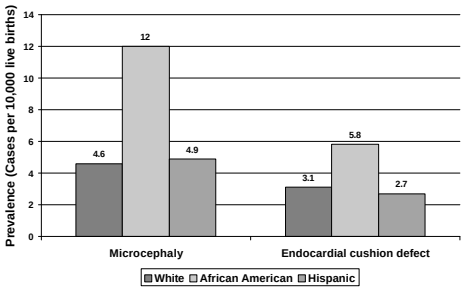
Prevalence of selected birth defects by maternal age, Texas, 1996-1997



MATERNAL RACE/ETHNIC GROUP

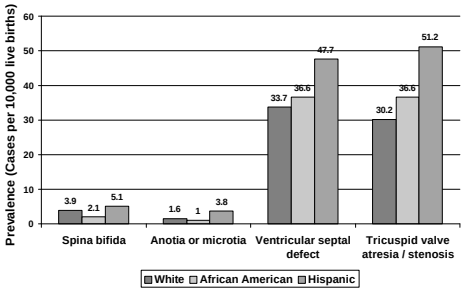
- **Highest in African Americans**
  - **Microcephaly**
  - **Endocardial cushion defect**

Prevalence of selected birth defects by maternal race/ethnic group, Texas, 1996-1997

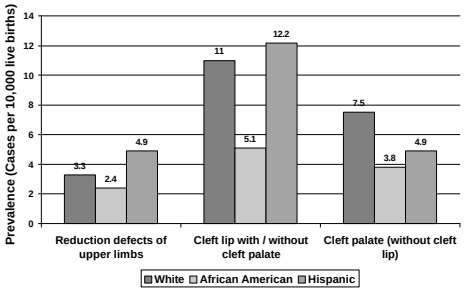


- **Highest in Hispanics**
  - **Spina bifida (without anencephaly)**
  - **Anotia or microtia**
  - **Ventricular septal defect**
  - **Atrial septal defect**
  - **Tricuspid valve atresia or stenosis**
  - **Patent ductus arteriosus**
  - **Pulmonary artery anomaly**
  - **Cleft lip with or without cleft palate**
  - **Reduction defects of the upper**

Prevalence of selected birth defects by maternal race/ethnic group, Texas, 1996-1997

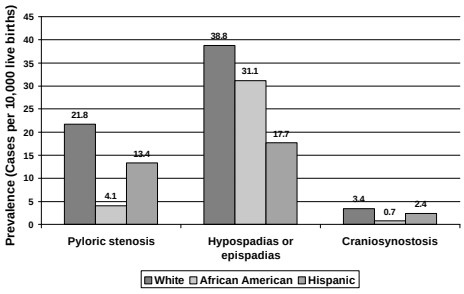


Prevalence of selected birth defects by maternal race/ethnic group, Texas, 1996-1997



- **Highest in non-Hispanic Whites**
  - **Cleft palate alone (without cleft lip)**
  - **Pyloric stenosis**
  - **Hypospadias or epispadias**
  - **Craniosynostosis**

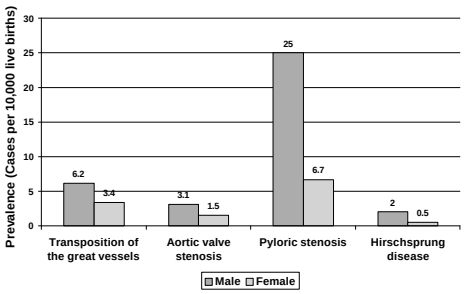
Prevalence of selected birth defects by maternal race/ethnic group, Texas, 1996-1997



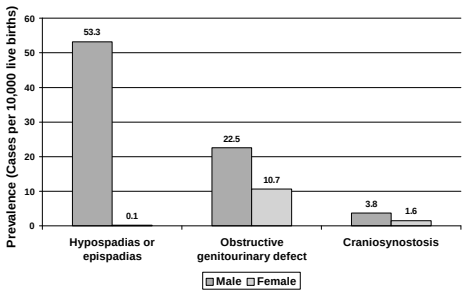
INFANT/FETUS GENDER

- **Highest in males**
  - **Transposition of the great vessels**
  - **Aortic valve stenosis**
  - **Cleft lip with or without cleft palate**
  - **Pyloric stenosis**
  - **Hirschsprung disease**
  - **Hypospadias or epispadias**
  - **Obstructive genitourinary defect**
  - **Craniosynostosis**

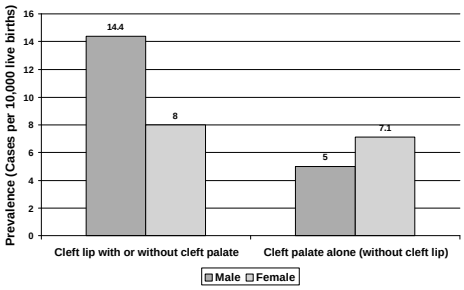
Prevalence of selected birth defects by infant/fetus gender, Texas, 1996-1997



Prevalence of selected birth defects by infant/fetus gender, Texas, 1996-1997

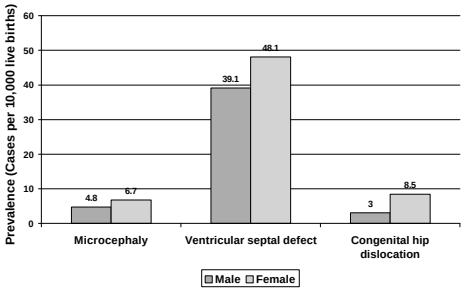


Prevalence of selected birth defects by infant/fetus gender, Texas, 1996-1997

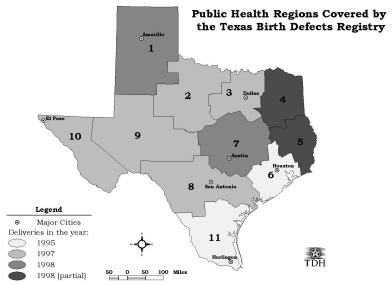


- **Highest in females**
  - **Microcephaly**
  - **Ventricular septal defect**
  - **Cleft palate alone (without cleft lip)**
  - **Congenital hip dislocation**

Prevalence of selected birth defects by infant/fetus gender, Texas, 1996-1997



A LOOK AT GEOGRAPHIC PATTERNS



DIFFERENCES

Birth defects showing significant differences; of those, highest rates were found in Region:

- **2 (Abilene - Wichita Falls)**
- **3 (Dallas - Ft Worth)**
- **6 (Houston - Galveston)**
- **Pyloric stenosis**
- **Hypospadias or epispadias**
- **Obstructive genito-urinary defect**
- **Microphthalmia**

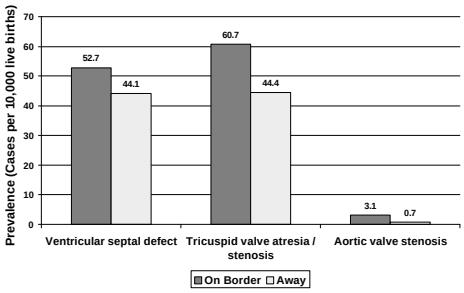
- 9 (Midland - San Angelo)
- 10 (El Paso - Big Bend)
- 11 (Lower Rio Grande Valley)

- Congenital hip dislocation
- Atrial septal defect
- Ventricular septal defect
- Pulmonary valve A/S
- Tricuspid valve A/S
- PDA
- Pulmonary artery

BORDER RESIDENCE

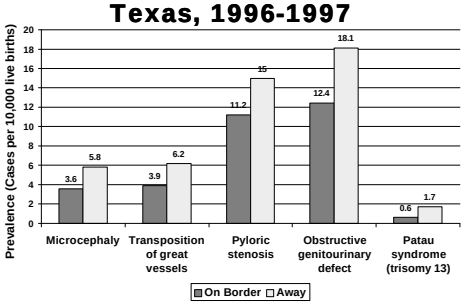
- Highest in Hispanic mothers living in counties on the border with Mexico
  - Ventricular septal defect
  - Tricuspid valve atresia or stenosis
  - Aortic valve stenosis

Prevalence of selected birth defects among Hispanics by border residential status, Texas, 1996-1997



- Highest in Hispanic mothers living in counties away from the border with Mexico
  - Microcephaly
  - Microphthalmia
  - Transposition of the great vessels
  - Pyloric stenosis
  - Obstructive genitourinary defect
  - Patau syndrome (trisomy 13)

Prevalence of selected birth defects among Hispanics by border residential status, Texas, 1996-1997



THE FUTURE

- Improve completeness of data by finding more prenatally diagnosed cases
- Monitor for changes over time
- Examine geographic patterns in more detail. E.g. mapping, small area analysis
- Further descriptive epidemiology, e.g. deeper analysis of patterns shown here

Speaker: Joe Mulinare, M.D., M.S.P.H.

Topic: Vitamins and the Prevention of Birth Defects

Objectives:

1. Cite one published study about vitamins and the prevention of birth defects.
2. Distinguish between occurrence and recurrence prevention of neural tube birth defects, and state the recommended levels of folic acid for each.
3. Describe four ways that women of childbearing age can consume more folic acid.
4. Name two birth defects (other than neural tube defects) that might be prevented by folic acid or multivitamins.

Abstract: Neural tube defects are a major cause of infant mortality and morbidity around the world. During the past 20 years, published results from randomized clinical trials, community intervention trials, and observational studies have shown that supplemental folic acid (with or without other vitamins) is capable of preventing some, but not all, neural tube defects. The scientific evidence of the efficacy of folic acid is strong. The preventive effect observed in these studies was apparent both among women with and without histories of a previous NTD-affected pregnancy. If all women capable of becoming followed the US PHS guidelines published in 1992, the number of cases of spina bifida and other neural tube defects could be significantly reduced. We need to inform individuals and health professionals about the effectiveness of folic acid. Our communication efforts will have to be on a global scale to maximize the prevention potential of folic acid.

Speaker: JoAnn Evans

Topic: The Impact of Birth Defects on Children and Their Families

Objectives:
1) List three programs that provide assistance to Texas children and their families.
2) Identify three challenges unique to families with a child affected by birth defects.
3) Describe three strategies for addressing these unique challenges.

Outline:
1) Working through the emotions
2) Helping your child
3) Building hope and success for the family

Speaker: Mary Ethen, MPH

Topic: Alcohol-Related Birth Defects

Objectives:

1. Describe at least three physical abnormalities that can result from consuming alcohol during pregnancy
2. Describe at least three behavioral or cognitive indicators of the central nervous system impairment that can result from consuming alcohol during pregnancy
3. Explain why fetal alcohol syndrome and other alcohol related birth defects are so difficult to diagnose

Outline:

1) Definition of fetal alcohol syndrome (FAS)
2) Diagnostic criteria for FAS:
   a) prenatal and/or postnatal growth retardation
   b) characteristic facial dysmorphology
   c) central nervous system impairment
3) Other alcohol-related birth defects (formerly called fetal alcohol effects, or FAE)
4) Indicators of central nervous system damage caused by alcohol
5) Alcohol consumption and metabolism by women
6) Effects of alcohol on the fetus
7) Prevalence of fetal alcohol syndrome and other alcohol-related birth defects
8) Prevention of alcohol-related birth defects

Abstract: Fetal alcohol syndrome (FAS) is a pattern of physical and mental birth defects caused by drinking alcohol during pregnancy. A diagnosis of FAS requires prenatal and/or postnatal growth retardation, a characteristic pattern of abnormal facial features, and central nervous system impairment. Even when the physical signs of FAS (abnormal facial features, growth retardation) are absent, alcohol abuse during pregnancy can cause central nervous system damage. Indicators of central nervous system damage include abnormal brain development; delayed childhood milestones; decreased intelligence; learning disabilities; attention and behavioral problems; hyperactivity; poor motor skills; difficulty reading faces and social cues; difficulty with abstract thinking; and difficulty generalizing information or predicting outcomes. People with FAS or heavy prenatal alcohol exposure are at risk for dropping out of school; drug and alcohol abuse; mental health problems; joblessness; homelessness; and getting in trouble with the law. The risk for these outcomes is much lower among children with an early diagnosis and stable family life. FAS and other alcohol-related birth defects can be prevented by helping pregnant women avoid alcohol or by helping women with alcohol abuse problems avoid pregnancy until they can abstain for the length of a pregnancy. Health care providers can use screening tools (short questionnaires) to help identify women at risk for alcohol abuse. FAS is estimated to affect 1.9 per 1000 live births; other alcohol-related birth defects are estimated to affect three to five times as many children as FAS.

disease prevention news

October 25, 1999 Vol. 59, No. 22

Screening for Alcohol Use During Pregnancy

Alcohol consumption during pregnancy puts the baby at risk of serious, sometimes lifelong health problems. Health care providers can play an essential role in preventing alcohol-related birth defects. To assist health professionals with the daunting task of intervening in this type of behavioral issue, the National Center for Education in Maternal and Child Health, in cooperation with the Maternal and Child Health Bureau of the US Public Health Service, produced the report Screening for Substance Abuse during Pregnancy: Improving Care, Improving Health.[1] *Adapted from this report, this DPN article discusses the benefits of screening for alcohol consumption during pregnancy and the role of health care providers in detecting and reducing substance abuse during pregnancy. It also includes sample screening questions, physician responses, and referral sources for further assessment or substance abuse treatment.*

Alcohol consumption during pregnancy increases the risk of spontaneous abortion, miscarriage, preterm delivery, and intrauterine growth retardation. Alcohol can cause physical malformations and damage the baby's central nervous system (CNS). CNS problems include decreased intelligence, learning problems, and behavioral problems. One of the most serious outcomes of maternal alcohol consumption during pregnancy is fetal alcohol syndrome (FAS), a constellation of physical abnormalities and problems of behavior and cognition. A diagnosis of FAS requires abnormalities in three areas: growth retardation; central nervous system involvement; a characteristic facial dysmorphology[2]

In 1995, 16.3% of pregnant women reported drinking alcohol during the month prior to being surveyed, with 3.5% of pregnant women reporting 5 or more drinks on one occasion or an average of 7 or more drinks per week.[3] An important step in preventing alcohol related birth defects is identifying women at risk for alcohol abuse. However, addiction experts estimate that up to 90% of people who abuse drugs or alcohol are able to maintain their normal lifestyles during the early stages of heavy use. Pregnant women who are abusing alcohol are no more likely than nonabusing patients to miss appointments, start prenatal care late, or come in intoxicated.

Screening for Alcohol Abuse

Testing for alcohol in blood, in urine, or on the breath detects only very recent use, as alcohol is rapidly metabolized. These lab tests provide no information on frequency or length of use. How, then, can health care providers identify women at risk of alcohol or other substance abuse?

The most reliable method to evaluate alcohol consumption is by using an alcohol screening tool, which should be incorporated into routine health care for both pregnant and nonpregnant women. Screening tools are brief questionnaires designed to identify people who are at risk of alcohol or other substance abuse and who would benefit from a more comprehensive evaluation. Some screening tools are just 4 or 5 questions that can be asked in about a minute. Good screening tools provide the opportunity for an open, nonjudgmental discussion of alcohol and drug use.

Benefits of Screening

Identification of alcohol use during pregnancy allows for intervention to reduce the risk to the fetus. Women in recovery have reported they wanted help during pregnancy but didn't know how to ask. For those women in whom you suspect substance

Continued ☞

abuse, but who have not disclosed it to you, it is still important to discuss the benefits of reduction or abstinence. Pregnant women are concerned about the health of their babies, and many women will reduce their use of drugs or alcohol on the advice of their health care provider.

For pregnant women without substance abuse problems, screening offers the opportunity to discuss the risks of alcohol or other drug use during pregnancy. Among women who are not pregnant, screening provides an occasion to discuss the benefits of giving up alcohol before becoming pregnant or as soon as the woman suspects she may be pregnant. For sexually active women who drink heavily, screening presents a chance to discuss the importance of using effective contraceptive methods until drinking can be controlled for the length of a pregnancy.

Screening, identification, and intervention result in healthier women and babies. It is a low-cost way to provide optimal health care.

Using Screening Tools

Health care professionals have the skills to identify and refer at-risk women for treatment. The basic skills of interviewing, being empathic and supportive, providing education on the risks of continuing adverse behaviors, describing the benefits of treatment, making referrals, and following up are no different than for any other medical problem.

Four examples of screening tools for alcohol use are provided below. Any woman who consumes more than 4 consecutive drinks at least once a week is at risk for alcohol abuse.[4] No minimum amount of alcohol consumption has been established as "safe" for pregnant women.

Choose the screening tool that suits your style and ask the questions in a nonjudgmental, nonthreatening manner. It may be helpful to practice asking the screening questions. Avoid making statements such as “You don’t drink or use drugs, do you?” or “Now that you’re pregnant, just don’t drink,” as these sorts of statements may reinforce denial. It is also important to recognize and address personal attitudes that may be unintentionally conveyed during an interview and influence a patient’s response.

Be prepared to answer patients’ questions about why you are asking. An introductory statement such as “I ask all my patients these questions because it’s important to their health and the health of their babies” will help to set the tone. For patients with a negative screen (no risk determined) discuss the benefits of avoiding alcohol during pregnancy.

Continued ☞

Ten-Question Drinking History[4]

Beer: How many times a week do you drink beer?
How many cans or bottles do you have at one time?
Do you ever drink more?

Wine: How many times a week do you drink wine?
How many glasses do you have at one time?
Do you ever drink more?

Liquor: How many times a week do you drink liquor?
How many drinks do you have at one time?
Do you ever drink more?

Has your drinking changed during the past year?

Any woman who consumes more than 4 consecutive drinks at least once a week is at risk for alcohol abuse.

TWEAK[5]

Tolerance:* How many drinks does it take for you to feel *high*?
Alternate wording: How many drinks can you *hold* (before falling asleep or passing out)?

Worry: Do friends or relatives ever worry or complain about your drinking?

Eye-opener: Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?

Amnesia: Have you ever awakened the morning after some drinking the night before and found that you could not remember part of that evening?
Alternate wording: Has a friend or family member ever told you about things you said or did while you were drinking that you could not remember?

"**K**ut" down: Have you ever felt that you ought to cut down on your drinking?

* *Ask only **one** of the tolerance questions.* The *high* question works well for women who frequently have 3 or 4 drinks, but never drink to the point of passing out. The *hold* question detects drinking patterns where large amounts of alcohol are consumed at one time.

A woman scores 2 points on the tolerance question if she needs more than two drinks to feel high, or if she can hold more than five drinks without falling asleep or passing out. A positive response to the worry question scores 2 points, and a positive response to each of the last three questions scores 1 point each. A total score of 2 or more is a positive screen for risk drinking.

T-ACE[6]

Tolerance: How many drinks does it take for you to feel high?

Annoyed: Have people annoyed you by criticizing your drinking?

Cut down: Have you ever felt you ought to cut down on your drinking?

Eye-opener: Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?

The tolerance question scores 2 points if the respondent needs more than two drinks to feel high. For the other three questions, each yes scores 1 point. A total score of 2 or more points is a positive screen for risk drinking.

AUDIT[7]

1. How often do you have a drink containing alcohol?
   (0) never
   (1) monthly
   (2) 2-4 times a month
   (3) 2-3 times a week
   (4) 4 or more times a week

2. How many drinks containing alcohol do you have on a typical day when you are drinking?
   (0) 1-2
   (1) 3 or 4
   (2) 5 or 6
   (3) 7-9
   (4) 10 or more

3. How often do you have 6 or more drinks on one occasion?
   (0) never
   (1) less than monthly
   (2) monthly
   (3) weekly
   (4) daily or almost daily

4. How often during the last year have you found that you were unable to stop drinking once you started?
   (0) never
   (1) less than monthly
   (2) monthly
   (3) weekly
   (4) daily or almost daily

5. How often during the last year have you failed to do what was normally expected of you because of drinking?
   (0) never
   (1) less than monthly
   (2) monthly
   (3) weekly
   (4) daily or almost daily

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
   (0) never
   (1) less than monthly
   (2) monthly
   (3) weekly
   (4) daily or almost daily

7. How often during the last year have you felt guilt or remorse after drinking?
   (0) never
   (1) less than monthly
   (2) monthly
   (3) weekly
   (4) daily or almost daily

8. How often during the last year have you been unable to remember what happened the night before because of drinking?
   (0) never
   (1) less than monthly
   (2) monthly
   (3) weekly
   (4) daily or almost daily

9. Have you or someone else been injured as a result of your drinking?
   (0) no
   (2) yes, but not in the last year
   (4) yes, during the last year

10. Has a friend, relative, doctor, or other health worker been concerned about your drinking or suggested you cut down?
    (0) no
    (2) yes, but not in the last year
    (4) yes, during the last year

Scores for each answer are in parentheses. A score of 8 or more is considered a positive screen.

Handling a Positive Screen

Patients with a positive screen are likely to be drinking at risky levels and warrant further assessment and follow-up. The key steps are as follows:

- Review what the patient has just reported to you.
- Express your concern for the health of the mother and baby.
- State that you know the mother wants her baby to be as healthy as possible, and that she can improve her baby's health by stopping use of alcohol and drugs.
- Assure her that the benefits will begin as soon as she reduces or stops use, and that the earlier she is able to stop, the better.
- Emphasize the importance of quitting alcohol and drugs, and tell her you will help her accomplish this.
- Discuss possible methods to help her stop, such as counseling, 12-step programs, and addiction treatment programs.
- Recommend a referral to a specialist for a more in-depth assessment. If possible, make an appointment while the patient is still in your office.
- Schedule a follow-up visit after her drug/alcohol assessment. Maintain interest and praise any reduction in use she reports.
- Monitor progress through communication with the treatment provider.

If you are in an area where access to formal treatment programs is limited or nonexistent, it may be up to you to help your patient reduce her substance use during pregnancy. Meet with her frequently (weekly or biweekly, as is done with other high risk pregnancies) to express your concern and the seriousness of the situation. Recommend that she reduce her use by one-half each day. Try to find out if her substance use is related to other troubles in her life, such as depression, marital problems, domestic violence, or a history of physical or sexual abuse, and seek referrals for these underlying problems. Remain positive and supportive, praise reductions in use, and continue to express your belief that she can succeed.

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Adapted from Morse B, Gehshan S, and Hutchins E. Screening for Substance Abuse during Pregnancy: Improving Care, Improving Health. Arlington, VA: National Center for Education in Maternal and Child Health, 1997.

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